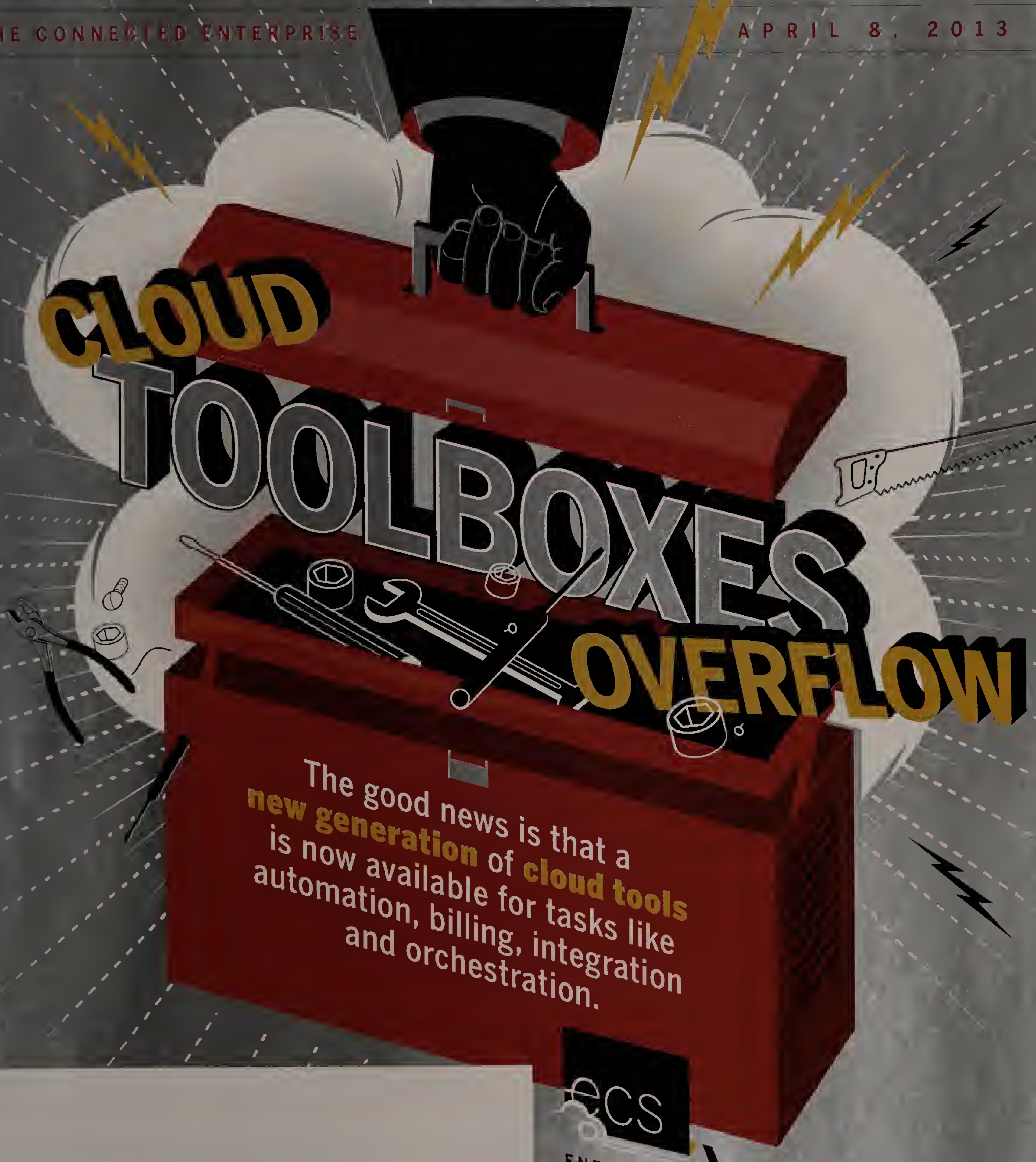
NETWORKWORLD

THE CONNECTED ENTERPRISE
APRIL 8, 2013



CLOUD TOOLBOXES OVERFLOW

The good news is that a **new generation** of **cloud tools** is now available for tasks like automation, billing, integration and orchestration.

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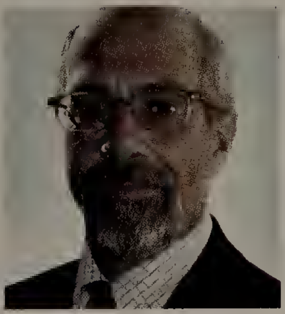
FROM THE EDITOR | JOHN DIX

The SDN incubator

A speaker at a Network World event recently asked the crowd of 450 IT practitioners if they were familiar with software-defined networking (SDN) and only about 10% raised their hands.

But while it may be early days in terms of user plans, the vendor community is starting to crawl with interesting companies leveraging SDN concepts and technology. Here are a few that I've talked to recently that are trying to change networking as we know it:



- **Pertino** has launched a network-as-a-service offering that uses a cloud-based SDN to enable you to build networks of people. You log in and create a network and onboard your devices by downloading client code (Windows 7 and 8, and Windows 2008 R2 devices with Mac OS X coming soon), then invite others to join by doing the same. People in your network can securely share files and access remote desktops and other company resources, all without messing with IP addresses, DHCP, DNS, NAT, etc. The service has implications for everything from remote desktop access to file sharing to a way to network people after a disaster. The service is free for up to three users, and beyond that is $10 per month per member.
- **Pluribus Networks** is a 3-year-old company that is still partially in stealth mode, but is talking about its combo switch/server that supports SDN's OpenFlow protocol and lets you approach networking problems in a range of interesting new ways. For one, you can build an SDN without using a separate controller. But with onboard compute smarts and up to 8TB of storage you can get creative, say by integrating security or other services or addressing performance issues by offloading compute tasks, the latter being perfect for demanding financial service environments.
- **Glue Networks** acknowledges that most SDN work has focused on the data center, but says the WAN will be the next focal point as organizations look to extend the fluidity made possible by virtualization. The company is building what it calls the Gluware WAN Operating System to "build, monitor, maintain and manage SDN WANs," with the main objective of "automating the creation and operation of an application-aware WAN."
- **Tail-f Systems** says it "creates an abstraction layer between network devices and centralized network control software . . . that interfaces directly with network devices from any vendor, as well as OpenFlow-compliant devices." The goal: bring legacy equipment into easier-to-configure/deploy/manage software-controlled networks.

Given the early stage of this emerging market, we can expect a lot more new players to crawl out of the woodwork.

John A. Dix

COVER ILLUSTRATION: STEPHEN SAUER

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peersay

Analyzing Cisco's latest layoffs

"FBR EXPECTS A more than 40% reduction in the number of switching and routing ports in service provider networks over the next 18 to 36 months." Although I believe that SDN is probably on the right side of history, I doubt if the above will come to pass (Re: "Cisco lays off 500"; tinyurl.com/bpkp2bp).

Although it is far from a scientific method, search any tech job posting site and see how many jobs pop up when you enter OpenFlow or SDN. Those of us who have been around a long time remember other protocols that were supposed to take over the world — ATM and OSI.

Bob Payment

IT IS HARD for casual readers outside of the industry to distinguish between confirmation bias and real industry trends. If the right bucket to place this event into is a strained Cisco/VMware relationship, then it's a bit of a stretch to attribute it to anything other than that.

SDN is not a thing but a methodology, and there's a ton of speculation as to what the implications will be. Filtering out general market dynamics from meaningful innovation is going to be critical. Without healthy debate and progress around "abstractions and trust," we run the risk of swapping out acronyms without solving fundamental problems.

Nils_Swart

Don't overlook small customers

IT'S IMPORTANT TO concentrate on small-end customers as well. I was with a company that was merged by a capital venture company. The only thing upper management concentrated on were the large accounts. When you have problems with a large account, you lose big. In the meantime, small accounts pay the bills (Re: "Avaya learns to share technology"; page 12).

Focus on those accounts and when they grow they will not forget your efforts. Big sites tend to change vendors just for the sake of changing vendors.

MJC Phones

AS A FORMER Avaya employee, I'm glad they're finally somewhat admitting they dropped the ball on small customers. When I was there, we lost a lot of business, most of it small businesses. Avaya would direct service calls to authorized "business partners" that would sell not only Avaya, but other brands as well, brands that cost less, though with fewer features.

Barry Pittman

Android at work: It's complicated

THE GOOD THING about Android is that it is easily customized to a specific device. The bad thing about Android is that it is easily customized to a specific device (Re: "Is Android in the business world to stay?" page 16).

This results in a fragmentation of the market and slow OS updates/security patches. There are even some pretty serious forks like Amazon Kindle which are optimized as media consumption devices, not general-purpose tablets. This seems to gradually be getting sorted so that barrier to adoption will lessen over time.

Jerry13

I SEE FAR too many decisions like, "We'll support Android . . . as long as it's Samsung . . ." in BYOD discussions. Yeah, Samsung makes great stuff, and is a market leader, but putting a restriction like that in a BYOD initiative is like only allowing Fords to park in your lot (Re: "Do's and don'ts for using Android in business"; tinyurl.com/cauq2u9).

Jan Klincewicz

Putting a restriction like that in a BYOD initiative is like **only allowing Fords to park in your lot.**

Liability for cloud security

CONTRACTS DO NOT prevent breaches, but liability clauses are still important. The liability language should: 1) ensure that the provider's insurance coverage can cover the total fees for a breach where the provider is at fault; and 2) ensure that the provider will and must allow for a third party to perform a root cause analysis and be bound by the findings (Re: "Responsibility for cloud security"; page 30).

Crystal Bedell

NETWORKWORLD

492 Old Connecticut Path, P.O. Box 9208
Framingham, MA, 01701-9002
Main Phone: (508) 766-5301
E-mail: firstname_lastname@nww.com
Editorial Calendar: http://tinyurl.com/39sf649

EDITORIAL
Editor in Chief: John Dix
Online Executive Editor, News: Bob Brown
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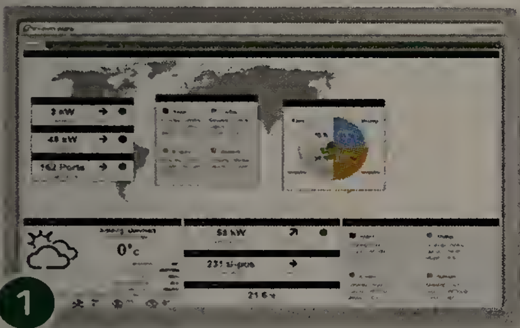
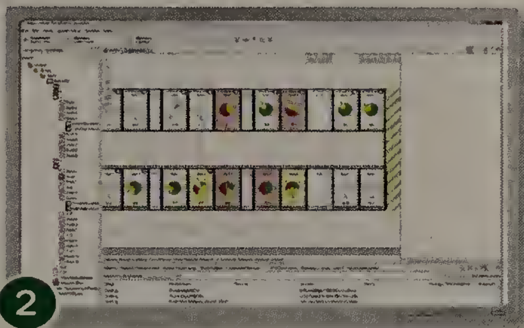


1

Monitor energy index globally

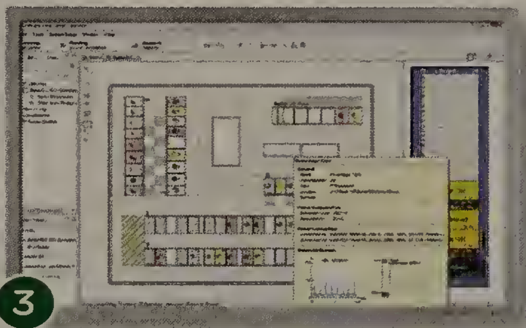
Get information to stay well-informed of energy market opportunity and/or market risk.



2

Identify excess capacity

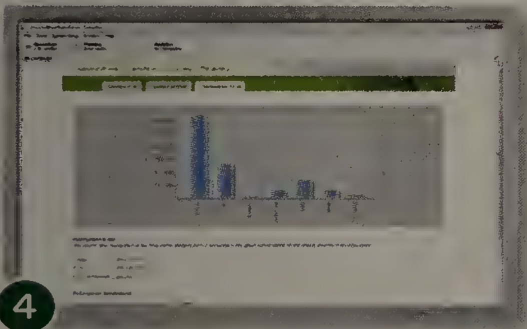
Find stranded capacity and determine which devices can be decommissioned or used elsewhere.



3

Report energy use/cost

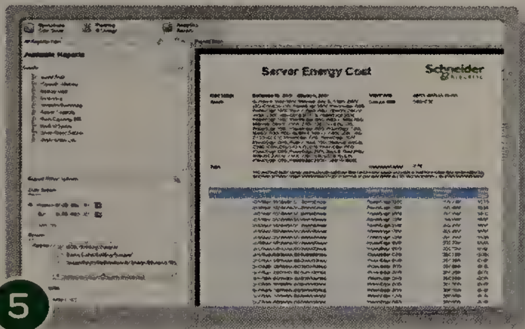
Collect, analyze, and report on your energy cost and consumption at the macro or micro level.



4

Show PUE across IT/facilities

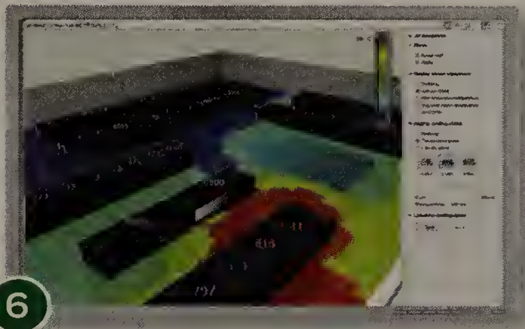
Generate a power usage effectiveness metric and dozens of other relevant key performance metrics in real-time.



5

Generate DC energy charge-backs

Provide energy use details that enable linking operating costs to each business unit user group for "charge-backs."



6

Simulate business-critical effects of system failure

Pinpoint potential mission-critical IT consequences of power and cooling failure.

Energy-efficient availability

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bits

Oracle brings Unix into the data center

ORACLE HAS EXTENDED its data center fabric to its Sparc-based Unix platforms, promising to let enterprises tie more servers and applications into the high-speed infrastructure. The fabric technology, which Oracle acquired in its purchase of startup Xsigo Systems last year, connects servers and storage over Ethernet and Infiniband and allows for thousands of virtual network interfaces. That saves IT departments from having to install multiple network interface cards and host bus adapters in its physical servers, while tying together the resources in the data center at speeds up to 80Gbps. The addition of Unix support is the first change Oracle has made to Xsigo's technology since the acquisition, apart from rebranding it as Oracle Virtual Networking. The company added Oracle Virtual Networking support to its Sparc T5, T4 and M5 servers and for the Oracle Solaris 11 OS on both Sparc and x86 hardware. The idea is that tying Unix servers to the fabric will give users, as well as servers, faster access to the critical applications that often run on those platforms. ***tinyurl.com/bskoufn***

HP to take a Moonshot

HP THIS week is expected to roll out a class of hyperscale servers as part of Project Moonshot, the company's attempt to build densely packed low-power servers that can scale performance quickly. The launch of Project Moonshot will be the culmination of close to one-and-a-half years of HP's experimentation in low-power server designs for hyperscale environments. Project Moonshot was first unveiled in November 2011 with an ARM server design, and later expanded to include a dense server with Intel's low-power Atom processors. HP hopes to reduce power and space requirements with the new servers, which are aimed at large data centers that handle Internet traffic and cloud implementations. With the low-power servers, HP is placing preference on faster delivery of information rather than processing power. Company CEO Meg Whitman last month said that the Project Moonshot platform would use 89% less energy, 94% less space and cost 63% less than a traditional x86 server environment. ***tinyurl.com/co4a6p6v***

Death to robocallers

THE FEDERAL Trade Commission last week picked two winners out of nearly 800 entries for its $50,000 Robocall Challenge which dared technologists to come up with an innovative way of blocking the mostly illegal but abundant calls. According to the FTC, Serdar Danis and Aaron Foss will each receive $25,000 for their proposals, which both use software to intercept and filter out illegal prerecorded calls using technology to "blacklist" robocaller phone numbers and "whitelist" numbers associated with acceptable incoming calls. Both proposals also would filter out unapproved robocallers using a CAPTCHA-style test to prevent illegal calls from ringing through to a user. A Technology Achievement Award went to Daniel Klein and Dean Jackson of Google for their Crowd-Sourced Call Identification and Suppression solution. The proposal from Klein and Jackson involves using automated algorithms that identify "spam" callers, the FTC said. ***tinyurl.com/cpul9xm***

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GOOD BAD UGLY

IEEE coming up to speed on 400G

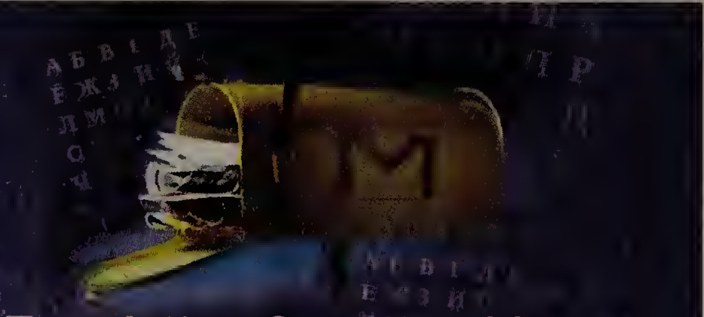
good

THE IEEE last week launched a study group to explore development of a 400Gbps Ethernet standard to support booming demand for network bandwidth. Networks will need to support 58% compound annual growth rates in bandwidth on average, the IEEE claims, driven by simultaneous increases in users, access methodologies, access rates and services such as video on demand and social media. Networks would need to support capacity requirements of 1 terabit per second in 2015 and 10 terabit per second by 2020 if current trends continue, the organization says.

What online file sharing policies?

bad

MORE THAN 75% of corporations have policies that prohibit the use of consumer online file sharing and collaboration tools, yet employee use of the services is still rampant, according to an Enterprise Strategy Group survey. "The thing is, IT had control of the data in the past. Now, it has only been three years since this (OFS) market has taken off and now data is everywhere," said ESG's Terri McClure, who spoke last week at the SNW event in Orlando. Even if employees are physically prohibited by a company's network from using a consumer file sharing service, McClure said it's not unusual for them to link to their favorite service via a Wi-Fi hotspot or a conference room network. (via Computerworld)



Translation: Spam trouble

ugly

SPAMMERS ARE using Google's good reputation to dodge mail filters to deliver their irritable spew to inboxes across the Internet. The complicated junkster tactic was discovered by Barracuda Labs after examining the messages from a variety of large-volume spam campaigns showing up in the company's honeypots. The messages, which wind up involving translations of Russian pages, contain links that use Google Translate to hide the ultimate destination of the link— typically a website hawking gray market pharmaceuticals.

Madeleine Albright offers forceful direction for women in the workplace

SPEAKING AT the CIA Women's History Month Celebration recently former U.S. Secretary of State Madeleine Albright offered a number of career advancing suggestions for women in the workforce. 1. "It is better to risk being thought rude than to give the impression you have nothing to say;" 2. "In any group, someone has to lead — and it might as well be you — and you have to be prepared to do so." 3. "When it comes to generating results, experience and character count far more than a wrinkle-free face." 4. "No one can make that choice for you, and no path is inherently right or wrong. . . . Act out of hope, not fear, and take responsibility for whatever you decide." 5. "None of us get to where we are on our own and none of us will get to where we want to go unless we move forward together." Lastly: "I have one message that I always insist on sharing with professional women, and that is to look around the room at the faces of your colleagues and remember that there is a special place in hell reserved for women who refuse to help one another," Albright stated. *tinyurl.com/cmrpx5s*

IT VIDEO

Find the space hogs on your hard drive

Video Tech Tip from Nick Barber gives you an easy way to find files and folders that are taking up the most space on your computer. *tinyurl.com/cnda9kx*

Dell researchers take ARM at supercomputers

NOT FAZED by a takeover battle looming on the sidelines, members of Dell's research division are putting together the pieces for prototype ARM supercomputers. Dell has a good idea what an ARM supercomputer would look like, and prototype designs and other "parts" are being experimented with in Dell's laboratories, said Tim Carroll, director at Dell's research computing group. ARM processors go into most smartphones and tablets and are attracting interest for use in servers. The power-efficient CPUs could help cut energy consumed by servers in data centers while bringing enough processing power to handle fast-moving Web search or social-networking requests. Dell is already offering low- to midrange prototype ARM servers for customers to play with. *tinyurl.com/mcxrk2*

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[1] Based on IBM testing and documented in IBM System x® Virtualization Server Consolidation sizing methodology. IBM Flex System x240 supports 2.7X more Peak Utilization Virtual Machines (VMs) than previous generation BladeCenter® HS22V.

[2] Based on IDC white paper "The Economics of Virtualization: Moving Toward an Application-Based Cost Model," Michelle Bailey, November 2009, http://www.vmware.com/files/pdf/Virtualization-application-based-cost-model-WP-EN.pdf

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SIP trunking: Are savings worth the transition?

BY TIM GREENE

THE MERITS of SIP trunking have been talked about for years and now it looks like businesses are aggressively adopting the technology, lured by striking cost savings and the promise of new functionality that their old phone networks just couldn't support.

A recent report by Infonetics Research found that of the respondents to a survey of North American businesses, 58% say they will use at least some SIP trunks in 2015 while 55% say they will use at least some T-1s. That's a dramatic shift from today, when the balance is 38% using some SIP trunking and 71% using some T-1s.

The best reason for adopting the technology: savings. Experts say telecommunications savings of up to 50% can be had depending on the individual network. Other benefits include better visibility into call patterns, centralized management, dealing with less hardware and engaging fewer service providers, particularly for branch offices.

SIP trunking involves connecting all corporate voice traffic to service providers' networks over a single IP connection rather than over multiple TDM lines. Those traditional T-1s and PRIs provide voice circuits in bundles of 23, which almost invariably means businesses pay for more lines than they actually need most of the time.

SIP enables buying only as many call instances that are needed, with the flexibility to add more on the fly over the same SIP trunk during heavy call periods. SIP trunking can also reduce intracompany long-distance fees by riding voice calls over the corporate data network, resulting in savings.

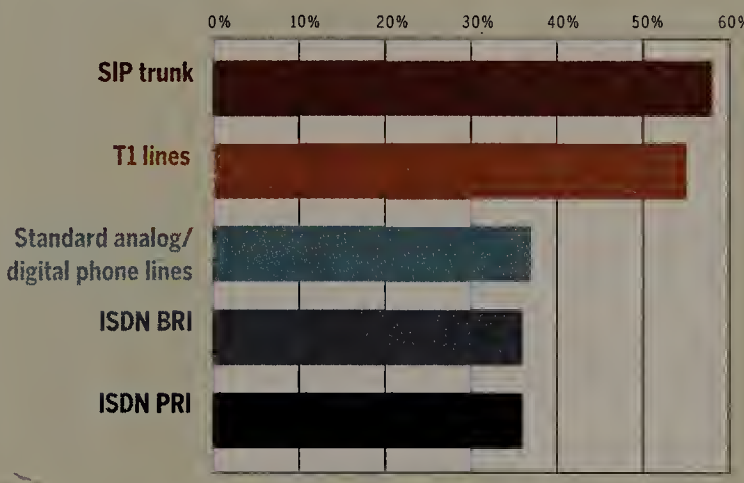
Finish Line, a national sports shoe and apparel retailer with about 700 stores, racked up $2 million in savings over three years, says Derrick Mitchell, enterprise voice supervisor for the chain. The cost of long-distance calls between stores dropped to zero by running them over the data network. The company negotiated down the cost of inbound 800-number calls to the Finish Line contact center to half what it was before, he says. More savings came from pulling expensive POTS lines and Centrex service from each store.

In a business with larger branch offices the savings could be even more, says Barb Grothe, CEO of Telecom Resources consultancy. If every branch had its own PBX, centralizing call routing would eliminate all the branch PBXs and their associated costs, she says.

Customers can expect other cost savings to come from reducing hardware needed to terminate copper circuits at corporate sites, therefore reducing maintenance, Grothe says. Instead, call paths — the SIP equivalent of phone circuits — run over a single connection that lands on a single port.

Survey respondents say SIP trunking is on the rise

278 North American businesses answered the Infonetics Research question: "Which PBX trunking services will you use by February 2015".



SOURCE: INFONETICS RESEARCH

SIP trunking can also reduce the headaches of dealing with many individual local carriers to set up phone service in businesses that have far-flung branch offices, she says. Calls can be routed centrally out a single trunk at headquarters, so just the SIP-trunk service provider is involved.

In the case of Finish Line, a single 100Mbps SIP trunk at corporate headquarters in Indianapolis replaces seven PRI lines, Mitchell says. Inbound calls destined for branch offices all come in over that line and are routed to the corporate MPLS circuit connecting headquarters to the destination branch. The centralized nature of the call flow provides visibility into call patterns that just weren't available with PRIs, Mitchell says.

While the benefits are clear, businesses entering into SIP trunking should recognize that capital expenditures are necessary but can be countered with ongoing savings in operational expenses, Mitchell says.

And implementing SIP trunking is not simple. It requires preparation and planning, Grothe says. She recommends spending six months to a year of researching, designing and negotiating before trying to switch over.

Some tips:

- Align cutovers with the end of current trunk contracts to avoid costly penalties.
- Know exactly what services are required to avoid attempts by providers to sell more than what is needed.
- Make sure the current PBX supports SIP. If not, upgrade.
- Carefully inventory phone numbers. This is essential for a smooth cutover.
- Provide for reliable 911 services.
- Provide a redundant trunk that has a separate entry path into the building.
- Make sure the existing data infrastructure has enough capacity to handle voice traffic at high quality of service.
- Become familiar with session border controllers, devices that negotiate calls between networks and that provide security.

All providers are not equal, so customers have to shop carefully, Grothe says. A new Gartner report, "Critical Capabilities for U.S. Wireline Telecom Services," scores seven providers (AT&T, CenturyLink, Level 3, Sprint, TW Telecom, Verizon, Windstream and XO Communications) on seven products, including SIP trunking. On a scale of 1 to 5, with 5 being the best, their SIP trunking scores ranged from 2.5 (TW Telecom, Windstream) to 4 (AT&T, Verizon).

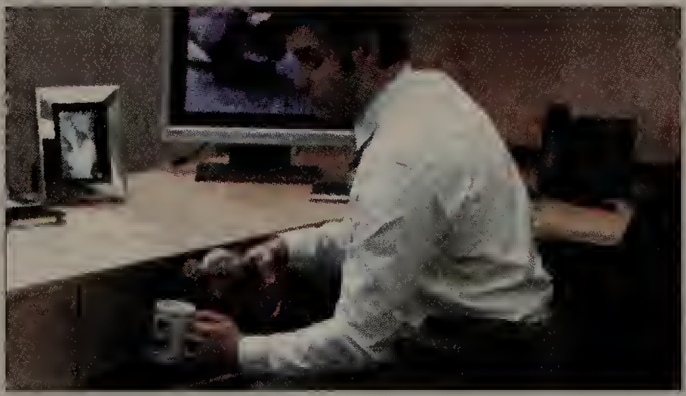
Those are overall ratings, but service providers offer a range of different features, and customers need to decide which ones they need. For example, Sprint has a feature called Event Trunking, which allows simultaneous call capacity to jump to a higher specified level during a certain time period and then drop back down, says Tammy Kapec, a Sprint product marketing manager for SIP trunking. It offers a mobility option in which calls can be routed to workers' cellphones if the trunk goes down.

Some providers supply configuration guides on how to set up specific call management platforms to work with their SIP trunks. For example, XO has certified interoperability of its SIP trunks with equipment from more than 30 vendors, says Steve Carter, XO director of product management. ■

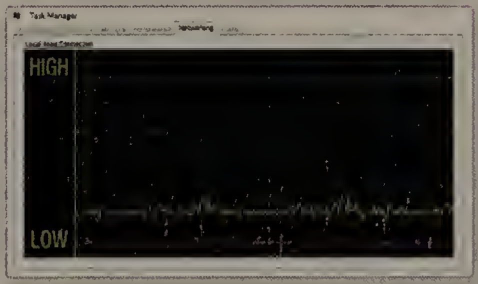
Avigilon lets you see all this

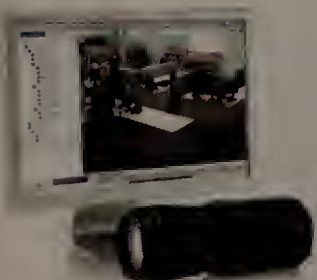
catch

and expose



while keeping bandwidth





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Avaya learns to share technology

Avaya CEO says company can work with Cisco, Microsoft

BY TIM GREENE

AVAYA UNIFIED communications products can get along with Microsoft's Lync Server, and many customers will probably choose to deploy both rather than just one, says Avaya's CEO.

Despite what he sees as shortcomings of Microsoft's real-time communications platform, businesses will see value to some of its features, and supplement those with products from Avaya, says Avaya chief Kevin Kennedy.

"Are they a full replacement for a phone system as you think about a phone system in the past? The answer is no," Kennedy says. "Are they a full replacement of room-based videoconferencing system today? The answer would be no. Are there many things that you would have to add, to integrate with it, to make it a full system? The answer is yes."

Nevertheless, customers faced with using Lync Server for some of its features such as instant messaging may deploy other features such as voice calling in certain circumstances, directly competing with Avaya products, Kennedy says. This despite Avaya's 50% lower consumption of network bandwidth, he says.

"The real reality is customers and employees will decide what tools they want to use, and it won't be just one tool," he says. "I actually think in many cases with many customers we will end up being a complement to Microsoft and Lync."

It's not just Microsoft that Avaya expects to share customers with, and with that in mind Avaya is embracing open standards for its UC products, "because we believe all of the answers are unlikely to come from any one company. If you want an application that can distribute an SMS to every device that you own versus just one, well a company may want that and a company may get that from someone else other than Avaya — Microsoft, Cisco."

Those two competitors have deep pockets that enable them to enter markets for the long-haul and ramp up sales slowly, he acknowledges, but Avaya can hang with them. "I think being one of three is a great thing," Kennedy says. "In some sense that's organizing for an industry, and as I further stated I think it will not be a single-vendor or a single-application, winner-take-all type of environment. As long as we continue to innovate and offer a proposition that is fundamentally different there will be a healthy place for us."

Kennedy's comments came during a one-on-one interview with *Network World* at Enterprise Connect 2013. At the conference, analyst Peter Hale of MZA Ltd. said Avaya had lost market share in IP telephony to Cisco between 2011 and 2012, winding up with 12% to Cisco's 18%.

> **"The real reality is customers and employees will decide what tools they want to use, and it won't be just one tool.**
>
> **KEVIN KENNEDY,** CEO, AVAYA

That in part was due to paying more attention to large customers and losing smaller-business customers, Kennedy says. "After we did the Nortel acquisition [in 2009], on both the contact center and the unified communications side our low-end and midmarket offerings became stale, and we were more focused on the high end."

But with the advent of a new single-server phone system, IP Office, Avaya has started to come back. "...[T]he good news is we're on a new product cycle, and that [IP Office] is so competitive is one of the reasons that we're winning again."

Kennedy says that Avaya's recently restructured debt should keep the company clear of a cash crunch through 2017 at the earliest and enable it to continue updating its products.

The company owes $6.075 billion in long-term debt and scored an $85 million net loss during the last three months of 2012, according to the company's latest 10-Q report to the Securities and Exchange Commission.

Kennedy says that despite the stark terms of the refinancing, customers shouldn't worry about its effects on actual products. "I would argue that through public information it is very clear that debt restructuring does not translate to an issue in product continuity. In fact it's quite the opposite, because that's the only value to be protected," he says. "That being said, gross margin, the ability to service debt, has improved over the last five years."

The company filed last June to sell public stock in the company but that initial public offering has stalled. Kennedy says he expected to seek an IPO in 2013, but the owners of the company, Silver Lake and TPG Capital, wanted to file earlier. "I think we filed in June and by August it had become a very dubious market and it was not optimum for us to go out," he says. "Again, owners will make those decisions. They're very clear for me to stay focused on improving the products, and that's what I do."

Meanwhile, Avaya is benefitting from its 2009 purchase of Nortel's enterprise network infrastructure gear and its customers, he says. "We're taking over the management of their infrastructure directly. That's a recurring revenue stream that becomes new to us as we take those contracts," he says.

That infrastructure in combination with Avaya voice gear gives customers resources to debug networks that other vendors can't match, he says. Customers who have Nortel equipment and choose to upgrade to the next generation choose Avaya to manage the transition.

Kennedy says Avaya supports BYOD programs with its Flare collaboration/presence/email/voice client and one-X mobile voice client for iPhones and Android devices. In addition, the company activates two softphones on PCs for every phone handset it sells, a dramatic change from four or five years ago when most sales were for hard phones.

Avaya's Identity Engines Portfolio also helps bring-your-own-device (BYOD) programs by setting aside virtual LANs for certain categories of users and making it easy for personally owned devices to access limited portions of corporate networks. "My real point is BYOD is not just a video or a unified communications client story; it is also married into the ease with which we can help people do BYOD as an overlay into your networking environment," Kennedy says. ■

Read our interview with Kevin Kennedy in its entirety. ***tinyurl.com/cpfytod***

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Health-IT early adopters examining big data

BY FRED O'CONNOR, IDG NEWS SERVICE

NEARLY A decade after research firms predicted major cost savings and clinical benefits from the use of health-IT, adoption rates among U.S. medical providers remain sluggish, with the industry slow to embrace the big-data movement.

Electronic health record (EHR) adoption has been fastest at larger, more technology-savvy medical organizations, while smaller practitioners — which make up the bulk of U.S. clinicians — have been slow on the health-IT uptake for a variety of reasons. Chief among them the cost, but also the training time and effort needed to make the move from paper. Those that don't adopt EHRs by 2015 face decreased government reimbursements for Medicare patients under existing law.

Questions surrounding the effectiveness and financial impact of EHRs were raised in a January report from RAND Corp., which reconsidered its 2005 prediction that health-IT could save the U.S. approximately $81 billion annually. The new report on the technology noted that health costs have increased since the 2005 research and called the clinical benefits "mixed."

But there are EHR success stories such as Kaiser Permanente and the Cleveland Clinic, and some healthcare providers are rapidly embracing the benefits that big-data analytics brings to clinical medicine.

"The government is pushing [EHR use] along and it's becoming a standard of care," says Tom Handler, research director of Gartner's healthcare provider analyst group and a former physician. "At some point in the near future, not heading down the path of an EHR [system] will not serve an organization well."

Long-term use of health-IT can lead to reduced care costs, even if expenses initially increase, he says.

In addition to the cost of the EHR system itself, its use could also increase medical costs by reminding doctors to order required tests that they forgot, he says. But this detailed care should lead to healthier patients who need less expensive medical treatments.

The U.S. government is nudging providers to adopt health-IT and is picking up some of the tab for EHR deployments. Costs for a system vary widely, from tens of thousands of dollars for a small practice to upwards of $1 billion for a major system implementation.

As part of the American Recovery and Reinvestment Act, the government dedicated $20.6 billion to EHR projects. Providers must show that EHR use improved healthcare through a series of reimbursement guidelines called meaningful use. The first phase dealt with purchasing and rolling out EHR systems and began in 2011. The second phase includes data interoperability provisions and started this year. Phase three covers improving outcomes and starts in 2015.

> **"Most providers are familiarizing themselves with EHRs but only a few organizations are delving into data projects."**
>
> **DR. JED WEISSBERG,** SENIOR VICE PRESIDENT, HOSPITALS, QUALITY AND CARE DELIVERY EXCELLENCE AND A PHYSICIAN AT KAISER PERMANENTE

EHR use is greatest at multidisciplinary practices with more than 50 doctors, Handler says. At smaller clinics the adoption rate is between 5% and 1%, he says.

Most providers are familiarizing themselves with EHRs but only a few organizations are delving into data projects, says Dr. Jed Weissberg, senior vice president, hospitals, quality and care delivery excellence and a physician at Kaiser Permanente, a 9 million-member health plan and care provider in Oakland. "The rest of American medicine is getting on the platform and getting up to speed."

But incorporating EHRs into healthcare does not automatically translate into robust data analysis. IT vendors, hospital executives and physicians pose unique challenges to getting big data into medicine.

Core EHRs "are still mainly used for documentation of individual patient visits and don't contain all the data you might like," Weissberg says.

At Kaiser, which completed rolling out its Epic Systems-powered EHR system, Kaiser Permanente HealthConnect, to its 37 hospitals and 533 medical offices in 2010, EHRs lacked the ability to capture pain and functionality data on patients who had joint surgery, for instance. Post-surgery metrics could be placed in a database that could help potential joint surgery patients learn how people with similar clinical conditions benefited from the operation.

Kaiser will start capturing this data and is looking into having patients enter this information via a secure Web portal or having a physician assistant handle the task with a tablet during the follow-up visit.

"Everybody wants this approach to big data and more advanced analytics to work," Weissberg says, noting that querying a database to research unique medical conditions is less expensive and faster than launching a research study.

Personalized medicine usually entails talk of genomics, but EHRs and data mining can also lead to tailored care, he says. "Starting with overall population we can define subsets by age, gender, clinical conditions and body mass index that are enough like you. We have enough data that we can at least show what happened to them."

For now, EHR functionality is limited to what developers build into the software, says Dr. Ramy Arnaout, a pathologist and associate director of the clinical microbiology laboratory at Beth Israel Deaconess Medical Center in Boston, noting that his views are his own and don't necessarily reflect those of his employer.

"If they don't build software that lets you mine data in the kind of ways that you're suggesting then you're largely out of luck," he says.

Vendors lack a financial incentive to add this functionality to their EHRs since they're already making profits on applications without these abilities. Adding data analysis functions means creating systems with greater interoperability and that threatens vendor revenue because it makes moving to another EHR system easier, he says.

But interoperability, which entails feeding standardized data that comes from a hospital's many departments into a single analysis platform, is essential for big data, Weissberg says.

"To get at that notion of big data, you need to take information from multiple data marts and systems that are very disparate and aren't built in an integrated way."

Hospital executives may not be eager to customize their EHR systems with data analysis modules since such additions can knock a customer off a vendor's standard upgrade cycle and result in multimillion-dollar upgrades, says Forrester Vice President and Principal Analyst Craig Le Clair.

Instead, hospitals are turning to agile technologies, like mobile applications and tablets, to plug into their EHRs. These technologies are dedicated to the "$50 billion problems that we have in healthcare," like analyzing readmissions, he says.

Executives are also watching the bottom line and won't fund IT projects that lack a proven return on investment. Large data-analysis projects fall under this category, Arnaout says.

"You're asking folks, when they have no money, to take a chance on something that is unproven," he says. "Right or wrong, unless you have a case study showing an ROI they're going to be watching their dollars."

Doctors too harbor doubts on data analysis' benefits although how they practice medicine—analyzing data stored over time from a variety of sources and constantly updating it to develop an output based on certain parameters — is how EHR data analysis would also function.

"Providers don't think of going to a big-data-type interface on the computer because they haven't seen it even though they're that computer right now." And with doctors focused on treating patients they're not demanding this technology, Arnaout adds.

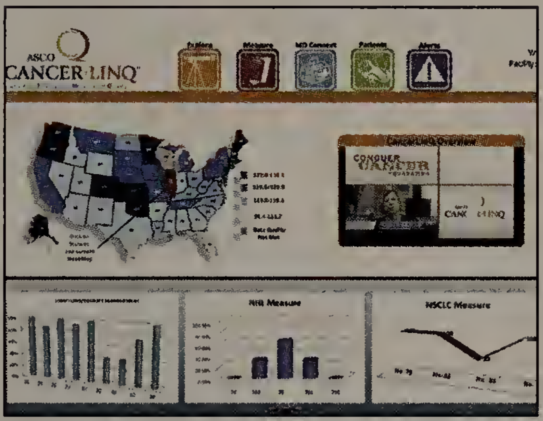
Building systems that medical professionals can trust requires hiring people with a strong understanding of medicine and computer science. Doctors with coding skills may not write the program but knowledge of both fields can lead to software that generates clinical value, Arnaout says.

With software developers in strong demand across many industries, programmers are accepting positions at technology companies with lucrative salaries that exceed the compensation hospitals offer, he says.

Cloud-based EHR data analytics services have started to enter the market, touting benefits like lower IT costs and access to medical information from multiple healthcare systems.

Cleveland Clinic is among the providers well-poised to take advantage of those technological advances.

EHRs and data analysis play important roles in the Cleveland Clinic's future clinical care plans, says Chris Coburn, executive director of Cleveland Clinic Innovations, the corporate venture arm of the Cleveland Clinic, which records 5.1 million patient visits annually and began using EHRs from Epic Systems in the late 1990s.



This is a prototype of the CancerLinQ interface.

"As we try to create the Cleveland Clinic of the future that enables us to best help our patients and also be as financially viable as possible, the use of EHRs and now with these big-data tolls that are arriving, it's a perfect match," Coburn says.

In 2009 the Cleveland Clinic launched Explorys, which sells a private software-as-a-service platform that allows medical professionals to explore care options using clinical, financial and operational data from 120 hospitals and 15 million patients. At the time, security concerns were paramount because of the sensitive nature of the data.

"In a relatively short period of time a very secure system was created that we all trust now," Coburn says. "We all worry about this. We're all patients. Folks will have as much confidence in security for their electronic medical records as it relates to things like banking electronically. People treat HIPAA extremely seriously."

For hospitals, cloud systems like Explorys offer affordable access to troves of data compared to the expense of developing their own systems that will contain less information, Coburn says. "We're not there yet in terms of where big data is going to take health care. But we are moving there pretty rapidly."

Last Wednesday, the American Society of Clinical Oncology (ASCO) debuted the prototype for its CancerLinQ database. The prototype, which focuses on breast cancer, contains deidentified information from EHRs, care providers and researchers. Physicians will be able to use the data stored in CancerLinQ's full build, which will be a private cloud accessible via a Web portal, to develop treatment plans tailored to a patient's specific cancer and clinical condition.

"The CancerLinQ prototype leverages a number of new IT trends: the availability of low-cost storage, the affordability and rapid scalability of virtual [cloud] servers, the growth and maturity of open-source software, as well as NoSQL [unstructured] databases," said Dr. Clifford Hudis, president elect of the American Society of Clinical Oncology. "Many of the benefits from these trends will likely carry forward into the full build."

The final build will include natural language processing, machine learning algorithms and distributed computing, among other technologies, he said. The final role of open-source software is still being considered, although open-source applications were mostly used in the prototype, according to an ASCO webcast. Hadoop, an open-source program used to distribute data processing loads, is a staple in large-scale data analysis.

Because the medical community is slow to incorporate IT into its workflow, these technologies were selected to make the adoption process easier.

"Typically, healthcare is slow to adopt IT due to the high cost associated with implementations and competing priorities," Hudis said. "Many of our goals around the architecture chosen was to reduce implementation burdens for practices and physicians."

With 85%to 90%of ASCO members using EHRs, oncology seems like a good match for a large data-analysis project, Hudis said. Additionally, patients and providers are very willing to volunteer their health data, he added. ASCO, whose 30,000 members are physicians and healthcare professionals representing all fields of cancer treatment and research, received 130,000 EHRs to populate the prototype after initially setting a goal of 30,000 patients.

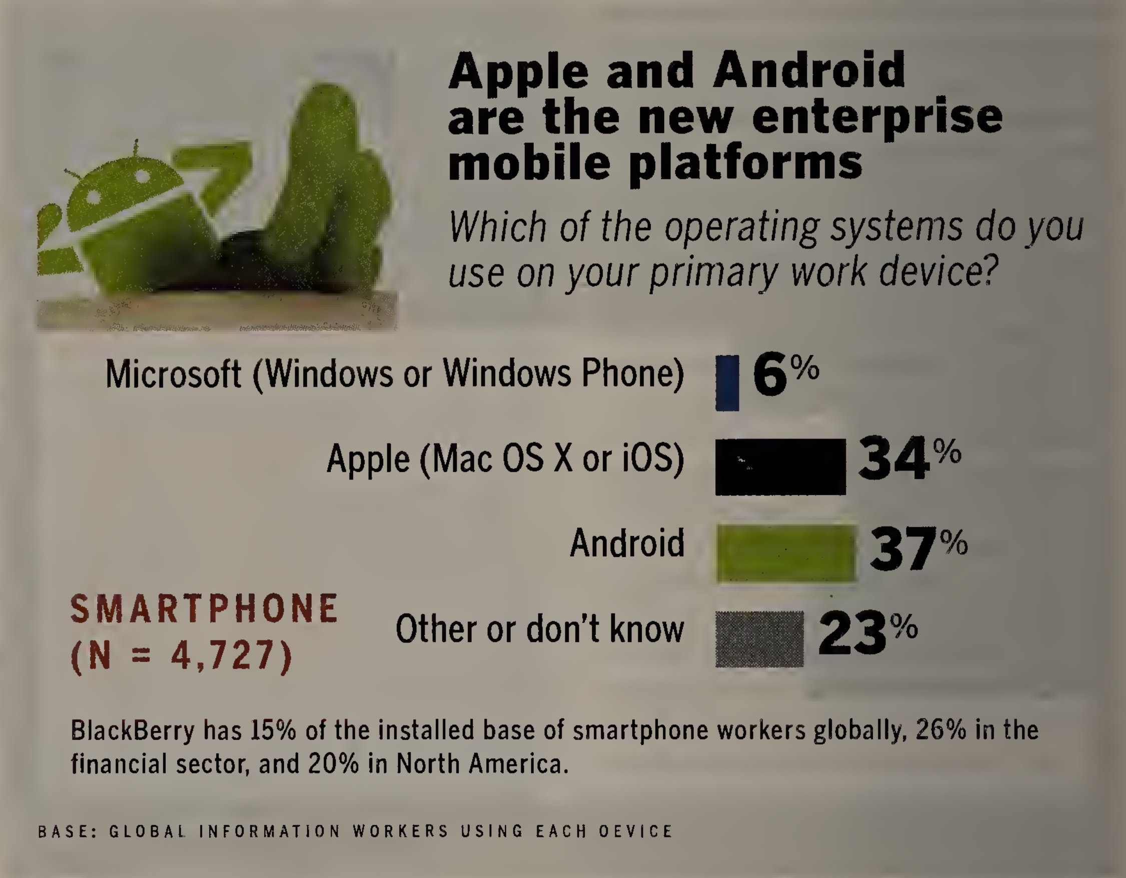
Regardless of government mandates on EHR use, data analysis will lead to tangible patient benefits.

"We've got all this stuff in the health care guidelines and things that are reimbursable and they end up being a little bit divorced from how our patients actually end up feeling," says Beth Israel's Arnaout. "[Data analytics] is actually going to help how our patients actually end up feeling." ■

Is Android in the business world to stay?

Security concerns persist, but Android smartphone and tablet choice a big lure

BY JON GOLD



Apple and Android are the new enterprise mobile platforms

Which of the operating systems do you use on your primary work device?

BlackBerry has 15% of the installed base of smartphone workers globally, 26% in the financial sector, and 20% in North America.

BASE: GLOBAL INFORMATION WORKERS USING EACH DEVICE

IT'S OFFICIAL, and it's been official for a while — Android is far and away the most popular smartphone OS in America. Ever since January 2011, when the platform surpassed RIM to take the top spot for the first time in comScore's monthly market share rankings, Google's operating system has continued to grow its user base, which accounts for 52% of the market as of this January.

This growth has been created on the back of substantial software upgrades, in the form of Ice Cream Sandwich and Jelly Bean (Android 4.0 and 4.1, respectively), as well as increasingly impressive hardware from OEMs like Samsung, HTC, Sony, Motorola and LG. Last year's Samsung Galaxy S III was the first phone to dethrone the iPhone in total quarterly sales in years, according to research from Strategy Analytics, though the subsequent release of the iPhone 5 saw Apple retake the top spot quickly thereafter.

It's easy to find a host of reasons for Android's ascendance among consumers -- a wide variety of devices offers more choice to prospective buyers, stronger hardware and bigger screens appeal to fans of the latest and greatest, and as of Android 4.0 and 4.1, the interface is arguably more impressive than the latest version of Apple iOS.

What's less simple, however, is figuring out why that dominance has taken such a long time to translate into broader uptake in the business world — the conventional wisdom is that the iPhone supplanted the BlackBerry as the enterprise smartphone of choice thanks to its own wave of popularity with the consumer, which gave rise to the bring-your-own-device phenomenon.

In contrast, Android has only recently begun to become a popular option for business users, despite its ballooning overall sales numbers. So what gives?

New management, new use cases

For starters, the perception of security issues in the Android platform have limited its appeal to businesses and made IT departments jumpy about a large number of Android devices accessing the network.

However, the past year or so has seen big changes in that state of affairs, says Morten Grauballe, an executive vice president in charge of corporate development and strategy at Red Bend Software, which provides over-the-air firmware update capability to many top Android OEMs.

“Android had a disadvantage in the enterprise compared to iOS because iOS was just more secure,” Grauballe says. “What's happened over the last 12 months is that the mobile device management solutions that evolved around both iOS and Android . . . [have] grown in functionality when it comes to supporting the devices, so I think CIOs in enterprises are feeling more comfortable letting Android devices on their network.”

Along with improved manageability, Forrester analyst David Johnson says a new crop of use cases is helping broaden Android adoption in the business world. One such new application is what he calls “Android-on-a-stick,” which is designed to provide a full desktop experience for highly mobile users like college students and consultants.

“Basically it's a headless Android device — complete with quad-core CPU, but it's on a stick that has an HDMI end on it,” Johnson explains. “[Users] can plug it into most any monitor or television that has an HDMI port and it works, but is powered by a USB port. Embedded Bluetooth and Wi-Fi allow it to connect to a keyboard and mouse, and gain access to a network.”

Moreover, the idea of dedicated-use consumer devices running Android is beginning to get more popular, he says.

“There is significant interest in using low-cost, consumer-grade tablets and smartphones for a whole host of new uses, from movie ticket scanning at the theater front door, to electronic on-board recorders [EOBR] for truckers,” according to Johnson. “In applications where the device needs to be fully ruggedized, Android is preferred because manufacturers can build the devices precisely to suit the need.”

Custom devices aside, the cost advantages of Android are substantial for this type of bespoke application, particularly in the tablet sector. To give an example: A Google Nexus 7 tablet retails for $200. That buys a 7-inch, 216ppi display, 16GB of storage and 1GB of RAM. By contrast, the cheapest iPad option available, at $329, is the basic version of the iPad Mini, which has a larger but lower-resolution screen and half as much available RAM with the same amount of storage.

Android popular now, but plenty of future demand for Apple

A recent survey of nearly 10,000 global IT workers performed by Forrester Research offers a clear indication that Android adoption in the enterprise has grown — along with several statistics that could mean that growth will be short-lived.

According to the February Mobile

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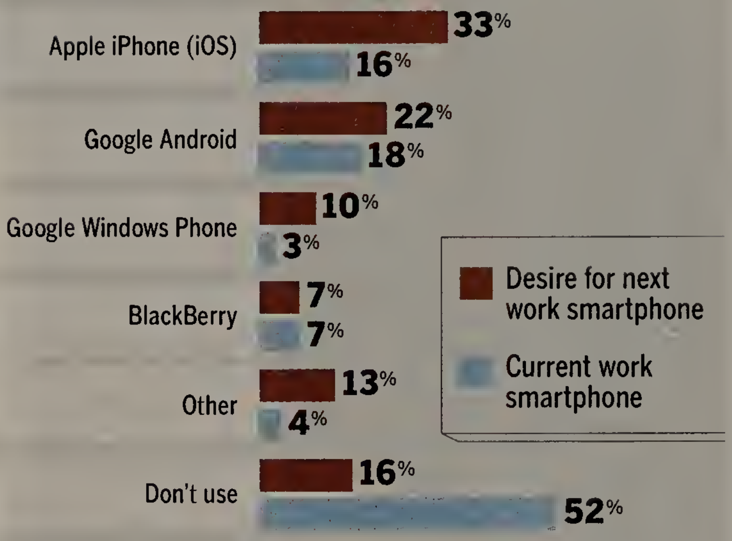
Workforce Adoption Survey, Android has actually surpassed Apple as the most-used type of business smartphone. While that's clearly an important milestone, particularly in light of the fact that nearly half of respondents said they used smartphones in the course of their duties, the study also found that one-third of those wanted an iPhone for their next work device, compared to just 22% who wanted an Android phone.

Despite the aforementioned economic advantages for Android tablets, the business tablet world still appears to be Apple's. The iPad's usage share among Forrester's respondents is more than double the size of Android's.

The numbers also show that Apple tablets are more desired by the IT workers surveyed, by a ratio of about 2:1. (As a side note, there's a surprisingly large amount of interest in Windows tablets, outstripping both Android and Apple.)

Apple's smartphone star will soar



208 million global information workers want iPhones.

BASE: 9,766 GLOBAL INFORMATION WORKERS

Clearly, while Google's platform has made progress in the business world, there are major hurdles to overcome.

iOS users dipping toes into Android

The case of one user, who primarily uses iOS but has taken baby steps toward Android adoption, is telling of the trend. Banner Engineering is a Minneapolis-based manufacturer of industrial equipment like sensors, machine safety systems and wireless controllers. The company's enormous selection of available products — more than 30,000 individual SKUs — means that providing detailed information on each one is a challenge for sales representatives in the field.

"The old story was our sales reps and distributors would travel around in their cars with trunk loads full of literature and product material," says IT Director Kellie Christensen. "If you go to a customer and they ask about a certain product application opportunity, you may or may not have that material handy."

Obviously, this was far from an optimal solution, so Banner embarked on a project that brought these reams of documentation to the digital realm. The company now issues iPads to sales staff, who can use them as a reference and presentation tool.

"One of our specialties is [working] with our customer to specialize products — so we'll have a standard product . . . and if they need a slight modification to that product, or even an extensive one, we work with that customer to create what we call product specials," Christensen says.

With just one device manufacturer to support, iOS seemed like the logical choice.

"Internally, we chose iOS because it's a lot more predictable, a lot more secure. It's really been quite easy for us to support," she says. "We're a smaller shop, we have a smaller IT group here, and [Android] would just be too much for us to support."

However, Banner works with channel partners as well as its own sales staff. And not all of those partners wanted to use the iPad. Christensen says the company used a third-party developer to translate the app over to Android.

The process was pleasantly straightforward, she notes.

"It actually was fairly easy to port [the app] over to Android devices. The biggest thing that we were dealing with from a design standpoint was that the screen was different . . . and making sure that those buttons were still friendly to use and that everything could be seen on the screen," Christensen says.

Mobility vets: Don't sweat security, fragmentation too much

CompanionLink Software Marketing Director Rushang Shah says this multi-platform environment has its own appeal to businesses, complexity issues aside.

"The business audience we've always catered to is one that values options more than being tied into one system like Apple," he argues. "That is one of the major drivers of Android's growth in the business market — business users want options."

CompanionLink has made mobile device sync software since the days of Palm OS. Shah says CEO Wayland Bruns was one of about 30 people at Palm's first developer conference, 18 years ago.

While the conventional wisdom holds that the two main factors holding back Android growth are security and platform fragmentation, Bruns and Shah say they question how valid those concerns still are.

According to Bruns, the issues caused by the complexity of the Android environment — different devices, different software versions, etc. — have been evaporating of late.

The credit for this goes to Google, he says. Ever since Android versions 2.2 and 2.3 (Froyo and Gingerbread), the company has been energetically attacking fragmentation problems.

"The API functions are better than ever at allowing us to add a new feature for new phones, and still be able to run the same software on older phones. Two years ago, we were bombarded by bugs and incompatibilities related to obscure phone models," Bruns says. "It has now been months since we have had such problems, even though we support the older phones as well as the newest Jelly Bean phones and tablets."

As to security, Shah says there's nothing intrinsically less secure about the Android platform than iOS.

"Inherently, I don't think there's anything about the Android platform that's more risky than iOS. Yeah, Apple has this aura of 'we lock down things' but . . . it's just as risky," he says.

Android/Chrome?

But will Android still be Android tomorrow? Rumors that Google would merge the mobile OS with its growing Chrome ecosystem started in earnest after the news in mid-March that longtime Android chief Andy Rubin would be making way for Sundar Pichai, who heads up Chrome and Google Apps.

The answer, for the moment, is yes, according to Google Executive Chairman Eric Schmidt, who said that the two products would remain separate during a recent trip to India.

That said, tight integration with Google's product infrastructure — from Gmail to Google + to any number of other offerings — has long been a hallmark of Android, and further blurring of the lines between Chrome and Android is far from impossible. ■

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TOOLS

Globalgig Hotspot: Taking the pain out of data roaming

Mark Gibbs' Gearhead

Business travel is, under the best of circumstances, a royal pain in the butt, and when you're roaming internationally with a smartphone and need to make some calls and keep up with email, you face a zonking great bill when you get home.

I recently made a trip to England and tried out a new gadget that makes data roaming impressively less costly. The gadget, the Globalgig Hotspot, provides an 802.11b/g Wi-Fi hotspot that can support up to five devices and delivers data service via one of a number of cellular service providers depending on which country you're in.

In the U.S., Globalgig's mobile service is provided by Sprint, while in the U.K., Ireland, Denmark, Sweden and Hong Kong, Globalgig uses cellular service provider Three, and Optus in Australia. Other countries will be available soon.

The Globalgig Hotspot is tiny, measuring just 4 inches by 2.15 inches by 0.7 inches. It has a switch on one edge and a mini-USB power connector on the end. It has an internal battery which is good for about three hours or can be plugged in (it comes with a number of international adapters).

I must digress and note that while driving cross country in England I also powered the Globalgig and my iPhone with a Verbatim Dual USB Power Pack, a terrific portable, 10,000mAh/42W, Li-Polymer battery that weighs just 13 ounces and which you can find online for as little as $46! The Verbatim Dual USB Power Pack gets an enthusiastic Gearhead rating of 5 out of 5!

In operation the Globalgig Hotspot works flawlessly. Setup and activation are simple, but there's a small problem: While you can configure the gadget and make it usable via any browser, there are a number of menu options in the user interface that result in a blank page unless you are using Internet Explorer.

Given that it's not guaranteed that users will have IE on every device they carry (which they definitely won't if they're iPhone and iPad users), this is an odd bug to find in a released product. That said, the bug is not a deal breaker, as you can get by without needing to access the complete device management system.

Another oddity in the design is that you can't charge the gadget without it switching itself on; it can only be switched off when it's running on its internal battery.

Here, however, is what matters: In use the Globalgig Hotspot just works. The cellular data throughput is very good (depending on local service quality), the Wi-Fi power is remarkably good for such a small form factor, the battery life is good (although something like six to eight hours would be much better), and there's really nothing in the way of management required for normal operation.

So, you're probably wondering, what does Globalgig cost? Well, if you opt for an 18-month contract the device is free, and on a month-to-month plan it costs $99. Data plans start at $17 per month for 1GB and go up to $80 per month for 10GB, with over-plan data being charged at $0.05 per MB. That's it.

I love this device! On my England trip I not only used the Globalgig Hotspot to check email, I also used it to navigate with Google Maps, and I made Skype calls (though admittedly not using video). As for cost savings, on another iPhone we racked up $150 in roaming charges for next to no use (AT&T charges just less than $20 per MB for international pay-per-use data roaming and $30 for 120MB on a pre-ordered plan!) so for frequent travelers the Globalgig Hotspot will save a fortune.

Bottom line: The Globalgig Hotspot is a great product and a great service and gets a Gearhead rating of 5 out of 5. ■

Gibbs is no longer roaming in Ventura, Calif. Connect with him at gearhead@gibbs.com and follow him on Twitter and App.net (@ quistuipater) and on Facebook (quistuipater).

Keith Shaw's Cool Tools

GADGETS

Muted excitement for latest Toshiba Android tablet

THE SCOOP

Excite 10 SE tablet

about $350, by Toshiba

▶ **What it is:** Toshiba offers four Android-based tablets, ranging from a 7.7-inch model (the Excite 7.7) and three 10.1-inch models (the 10, the 10 LE and the 10 SE). The 10 SE weighs 1.4 pounds, measures 0.4 inches thick and includes the Android 4.1 (Jelly Bean) OS.

Hardware features include dual HD cameras (front and rear), a micro SD card slot for media transfer and extra storage, stereo speakers with SRS Premium Sound and the Nvidia Tegra 3 Super 4-Plus-1 quad-core processor. The base model includes 16GB of storage capacity, and you can upgrade to the 32GB model for an additional $50.

▶ **Why it's cool:** The tablet is basically the same as the company's other Excite tablets, save for the addition of Android 4.1 and some other minor changes. The price tag is about $50 less than a comparable iPad (the older iPad 2 is $400; the latest iPad with Retina display is $500). The back of the unit features a Fusion Lattice material that is easier to grip than the aluminum surface found on the Excite 10 model. The tablet gives you the full Android/Google tablet experience along with other services and apps that go along with it.

▶ **Some caveats:** The 10SE model features lower-resolution cameras compared with the similarly priced Excite 10 model. On the front, you drop to a 1.2-megapixel camera compared with a 2-megapixel camera; on the rear, you drop to 3 megapixels from a 5-megapixel version. In addition, there's no micro HDMI port, which you have on the Excite 10 model. You're also replacing a full-size SD card slot for the new micro SD card slot. In addition, your Wi-Fi is limited to 2.4GHz; it's not a dual-band radio. There's also no built-in 3G or 4G wireless, so you're limited to Wi-Fi areas for Internet access (although you could connect via a Mi-Fi-type mobile hotspot device). The tablet is also sold directly through Toshiba's website; you can't find it at other retailers.

▶ **Grade** ★★★½ **(out of five).**

THE SCOOP

EliteBook Folio 9470m Ultrabook

by HP, about $1,350

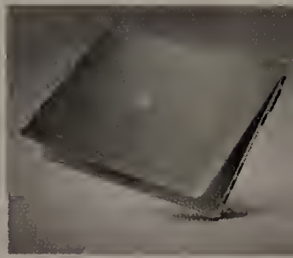
▶ **What it is:** This is HP's first ultrabook designed for business users — the light notebook also includes docking capabilities (if you get the $150 UltraSlim Docking Station), longer battery life options and IT features like security management tools (including an integrated smart card reader). The 14-inch notebook measures only 0.75 inches thin and weighs about 3.5 pounds. It also includes three USB 3.0 ports, a VGA and DisplayPort, built-in Ethernet and memory card reader (SD/MMC).

Other specifications include the latest versions of 802.11a/b/g/n Wi-Fi, Bluetooth and options for 3G and 4G network connectivity, a 720p webcam and integrated stereo speakers.

▶ **Why it's cool:** The notebook is small enough to make mobile workers feel like they're carrying around the latest-and-greatest thin notebook, yet big and powerful enough to make the IT group happy (on both the security side and software side). Unlike other ultrabook models, the 9470m doesn't feel like it will break into 50 pieces if you drop it.

The long battery life options are also impressive — depending on the battery chosen (as well as the hard drive type you pick), you can get from 8.5 hours up to 21.75 hours of battery life. That's a lot of work that can get done before you need to worry about where you've stashed the power adapter!

▶ **Some caveats:** The version I was sent included Windows 8, which dampened my enthusiasm greatly. It's unclear why someone would want a Windows 8 notebook without a touchscreen — the display on the 9470m is not a touchscreen. You can get the notebook with Windows 7 flavors installed (as well as FreeDOS), so it's hard to completely ding the notebook for this problem. I'm also not a fan of the dual headphone/microphone combo port, which can make for difficult webchats (most headsets I use still use the dual jacks).



▶ **Grade** ★★★★½

Shaw can be reached at kshaw@nww.com. Follow him on Twitter: @shawkeith.

CLOUD TOOLBOXES OVERFLOW

/// ENTERPRISE CLOUD SERVICES

SPECIAL ISSUE 2 OF SIX

BY CHRISTINE BURNS

THE SKY IS THE LIMIT

for both the number and the types of tools that will eventually help enterprise IT fully embrace the cloud, say industry analysts and cloud integration experts. There are currently tools available that can assist IT departments with VM configuration management, help migrate in-house business applications to the cloud, enable full orchestration of cloud services and provide monitoring across multiple clouds. There are also tools that implement management policies in the cloud, set governance parameters and handle encryption management for data flowing around up there. These tools are being delivered in equal proportions by cloud platform providers, systems integrators, third-party startups and established vendors. That said, one market condition holding back widespread proliferation of these tools is whether or not enterprise cloud consumption has matured enough to take advantage of them.

> “Right now, we try to keep things as **SIMPLE AS POSSIBLE** when it comes to layering tools on top of the services we're running in the cloud.”
>
> **CRAIG MILLER,** CTO, Empire Avenue

“Across many of these classes of tools, it's really not a question of the technology being mature enough for use in the enterprise, it's more a question of whether or not the enterprises working in the cloud are ready to employ them,” says Laurent Lachal, a senior analyst with Ovum, an IT consulting firm.

Mike Pearl, a principal in PricewaterhouseCoopers' Advisory practice and leader of PwC's Cloud Computing initiatives, says many of the enterprise customers he works with have spent the last couple of years getting a strong handle on virtualization within their own data centers, while watching the public cloud to see how it might fit into their operations.

Currently, most of those PwC clients are working on implementing the automation and provisioning services necessary to achieve the economy-of-scale benefits cloud computing promises.

“The next step for these IT shops will be identifying the tools that will make delivering automated cloud services to their users more of a point-and-click proposition. Things that address cross-platform management, metering, granular dashboard visibility into cloud assets, and tools that help provide self-healing services are certainly going to be useful to them at some point. But for most, those are still a future proposition,” Pearl says.

Keeping it simple

“Right now, we try to keep things as simple as possible when it comes to layering tools on top of the services we're running in the cloud,” says Craig Miller, CTO of Empire Avenue, a social media exchange network in Edmonton, Alberta, that helps users meet other people and measure their social media value.

Empire Avenue runs on a mix of dedicated and multi-tenant virtual servers in the Rackspace cloud that support its website, development environment, file servers and databases. The company also employs Amazon's cloud storage service. Miller and his team have generally been very satisfied with the tools provided by Rackspace to do things like resizing virtual machines. And his team routinely writes its own configuration scripts on the VMs when necessary.

“But third-party tools add a layer of complexity that we're not interested in dealing with at this point,” Miller says. He also pointed to the fact that tools that tap into VM cycles to operate can significantly increase the cost of running in the cloud. “When you keep your resource usage tight, you pay less, which is one of the major benefits of being in the cloud.”

All of the major cloud platform providers have built or bought layered sets of cloud administration tools that are available to customers who want to take advantage of them. For example, Rackspace offers up its Cloud Control Panel, a GUI-based tool currently being revamped to include features that let users add customized labels to any of their cloud assets, set filters to help find assets that share common properties and more easily perform multiple administrative tasks from the same screen.

AWS Management Console (AWS Console) is a point-and-click admin interface offered to customers to manage and monitor instances running across its suite of cloud offerings. Amazon also makes available a mobile application for Android, which has support for some of the management features from the console.

“Enterprise IT wants the same types of cloud management tools that they are used to having for managing servers in their data center,” says Doug Jarvis, product marketing manager for SUSE Cloud, a private cloud offering based on the open source OpenStack IaaS platform.

The linchpin of SUSE's cloud management toolset is the SUSE Cloud administration server, which helps customers navigate the more than 700 configuration and provisioning options for the SUSE Cloud control, compute and storage nodes. Jarvis likens the features of this toolset to that of the company's YaST (Yet another Setup Tool), its trusted program for deploying and managing its Linux-based server software. “Configuration is the critical piece of making a cloud deployment possible,” Jarvis says.

Rackspace CTO John Engates — while careful to say his company would continue to evolve its admin tools that give cloud users hands-on control over their cloud assets and will encourage partners in the OpenStack project to do the same — argues that corporate IT should also be looking at tools that automate provisioning and administration tasks.

Last month, Rackspace included OpenCenter — a cloud automation tool — as a feature in its private cloud offering.

According to John Treadway, senior vice president with consultancy Cloud Technology Partners, there is some confusion in the marketplace between cloud automation tools and cloud orchestration ones because the two are often incorrectly interchanged.

Automation is when processes are programmed for repeatable tasks, while orchestration joins dissimilar automated processes together using workflows and provides some integrity for data flowing across those processes. Automation is generally the bailiwick of the cloud providers, as it is increasingly being built into most IaaS stacks, Treadway says.

He pointed to OpenStack, where there are several projects circulating that could advance automation services for any cloud provider running an OpenStack-based service. VMware offers up strong automation tools for users of that platform, he adds.

The traditional systems management vendors, like HP, CA and IBM, also sell cloud automation tools, but Treadway notes they are generally more complicated, brittle systems that would likely be used by IT operations that have long-term relationships (and consulting service contracts) with those vendors.

Third-party cloud management tools from vendors such as RightScale, Appistry, DynamicOps and Tap In Systems also offer tools that boost automation processes with technology like VM auto-resizing in their own clouds. They also offer usage metering, cross-platform performance monitoring and cost tracking.

Automation vs. orchestration

“Automation, though, is ultimately going to be one of those things that over time just kind of disappears under the covers in the cloud so IT won't have to worry all that much about it,” says cloud analyst Paul Burns, a president of Neovise. Both Burns and Carl Lehmann, an analyst with the 451 Group, argue that orchestration is the bigger problem that needs to be solved.

“It plays into the whole question of how do you include cloud in your overall computing architecture and link it properly to what you already have?” Lehmann says.

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Cloud orchestration happens on two levels, explains Lehmann. "You have application-to-application integration and you have business-to-business integration. The former is the easier to pull off because there are less security complications," Lehmann says.

Cloud orchestration products are being served up by both traditional middleware vendors like Oracle and IBM and by cloud-focused vendors like Dell Boomi, Informatica, Jitterbit and MuleSoft.

CenterPoint Energy is a Fortune 500 electric and natural gas utility serving markets in Arkansas, Louisiana, Minnesota, Mississippi, Oklahoma and Texas. According to Barry Glasco, who serves as the company's Salesforce.com subject matter expert, CenterPoint Energy uses MuleSoft's CloudHub, an integration platform as a service (iPaaS), which enables his company to collect all the data from a host of utility companies to run its www.mytruecost.com website. "We've got to interact with both regulated and deregulated sources across this industry, making thousands of calls a day between their data sources and our Salesforce.com platform. It's got to be a continuous integration," Glasco says.

One of the biggest challenges is making sure that the data being used across these on-premises and cloud assets is clean, organized and performing reliably. "And that plays into the whole issue of cloud governance, which ideally helps us understand better what is happening to the data as it moves across applications, across the cloud and across businesses," Lehmann says.

Cloud governance is a general term for applying specific policies or principles to the use of cloud services in an organization, the goal of which is to secure applications and data when they are located remotely.

Lehmann says that cloud governance is lagging behind data orchestration in general as there are no specific suites of tools that specifically target this area of cloud management. "But you can see the underpinnings of cloud governance being laid down in part by tools that can track authentication processes, access controls and key management in the cloud," Lehmann says. ■

Burns is a freelance writer. She can be reached at cburns1227@gmail.com.

TOP 10 CLOUD TOOLS

BY CHRISTINE BURNS

Cloud vendors are delivering boatloads of new tools to help enterprise IT build, buy, manage, monitor, tweak and track cloud services. These tools are designed to help IT execs free up their budgets and their staff so both can be used towards more strategic line-of-business projects. We surveyed cloud practitioners and came up with this list of the most useful cloud tools.

HERE ARE THEIR TOP 10 PICKS

1. Cloudability

PRODUCT: CLOUDABILITY • CATEGORY: CLOUD COST ANALYTICS

Cloudability is a financial management tool for monitoring and analyzing all cloud expenses across an organization. It aggregates expenditures into reports, helps identify opportunities for reducing costs, offers budget alerts and recommendations via SMS and email, and provides APIs for connecting cloud billing and usage data to any business or financial system. The company in February announced that it currently monitors more than $250 million in cloud costs — double what it monitored less than six months ago.

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CABLESYS

2. Cloudyn

PRODUCT: S3 LIFE-CYCLE TRACKER, EC2 RESERVATION DETECTOR, RDS RESERVATION DETECTOR

CATEGORY: CLOUD OPTIMIZATION

These tools are designed to help corporate IT from over-buying Amazon cloud resources. Cloudyn's suite of services gives users a dashboard showing detailed information on all of their virtual machine instances, databases and storage. Cloudyn then provides insights into inefficiencies and suggestions on how to get rid of them. Currently focused on Amazon's cloud, the company has stated in the past that it will work on tools that track usage in Rackspace, Microsoft Azure and GoGrid in the future.

3. Dell Boomi

PRODUCT: ATOMSPHERE

CATEGORY: CLOUD INTEGRATION

AtomSphere is a cloud-based software platform as a service used by customers that want to integrate their various cloud-based applications with each other and with on-premise applications. New functionality provided as part of an upgrade last summer allows usage of multiple data sources and reservation of cloud resources for real-time data transfer in integration processes. The company announced in February that the AtomSphere platform is now handling more than 1 million integration processes per day. That number is 250% higher than it was a year ago.

4. Enstratius

PRODUCT: ENSTRATIUS

CATEGORY: CLOUD INFRASTRUCTURE MANAGEMENT

Enstratius provides cross-platform cloud infrastructure management for public, private and hybrid clouds that can be closely aligned with an enterprise's governance and security requirements. Features include self-service provisioning/de-provisioning of cloud resources; multi-currency cost/chargeback tracking; customizable role-based access controls; single login to manage all cloud resources; and support for enterprise authentication systems, including SAML 2.0 and OpenID.

Enstratius also supports integration with management tools and the orchestration of configuration management tools such as Chef and Puppet across clouds; and automated encryption of all cloud data in transit and at rest with all keys stored outside of the cloud and full application automation, including auto-scaling, auto-recovery and cloudbursting.

5. Informatica

PRODUCT: INFORMATICA CLOUD SPRING 2013

CATEGORY: CLOUD DATA INTEGRATION

Informatica — a longtime data integration vendor — this month will roll out its next-generation suite of cloud integration tools (which are delivered as a platform as a service) that include enhancements that address data security issues in the cloud and help enterprise IT manage data integration issues in hybrid cloud deployments.

The new Informatica Cloud Data Masking service reduces the risk of data breaches during application development and testing. And the new Informatica Cloud Extend workflow service is geared toward business process creation and management in the cloud. The upgrade from the company's Cloud Winter 2012 version also delivers new security and administration features that support broader cloud integration deployments and strengthen IT governance and control.

6. MuleSoft

PRODUCT: CLOUDHUB

CATEGORY: CLOUD INTEGRATION SERVICE

Delivered as a packaged integration experience, CloudHub and Mule ESB are built on open source technology to provide quick, reliable application integration without vendor lock-in. The company offers CloudHub, a cloud-based integration platform as a service (iPaaS) for connecting SaaS, cloud and on-premises applications and APIs; and Mule ESB, an open source enterprise service bus for connecting enterprise applications on-premises and to the cloud. The company claims it is currently supporting billions of transactions per day, used in production by thousands of enterprises, including Walmart, MasterCard, Nokia, Nestle and Honeywell. Additionally, MuleSoft enables integrations with leading SaaS vendors such as Salesforce.com, NetSuite, Workday, Intuit and Metanga.

7. Opscode

PRODUCT: CHEF

CATEGORY: CLOUD CONFIGURATION MANAGEMENT

Chef is an open source Ruby-based configuration management product served up by Opscode under the Apache license. Hosted Chef (and its private cloud sibling, Private Chef) lets cloud system administrators programmatically configure virtual systems, thereby cutting down on repetitive, manual operations. Chef — which, as the name might allude, uses culinary terms as metaphors to organize its processes — mainly homes in on the tasks of provisioning, configuring and integrating cloud resources. Opscode in February released a completely rewritten version of Chef which the company says offers unparalleled scalability.

8. Puppet Labs

PRODUCT: PUPPET

CATEGORY: CLOUD CONFIGURATION MANAGEMENT

Puppet Enterprise is IT automation software that gives system administrators the power to easily automate repetitive tasks, quickly deploy critical applications, and proactively manage infrastructure changes, on-premises or in the cloud. The product can automate tasks at any stage of the IT infrastructure life cycle, including provisioning, discovery, operating system and application configuration management, build and release management, patch management, and infrastructure audit and compliance.

9. RightScale

PRODUCT: RIGHTSCALE CLOUD MANAGEMENT

CATEGORY: CLOUD MANAGEMENT

Formed in 2006, RightScale was one of the first companies to address cross-platform cloud management. Its platform lets organizations easily deploy and manage business-critical applications across public, private and hybrid clouds. RightScale provides configuration, monitoring, automation, and governance of cloud computing infrastructure and applications. RightScale recently released the newest additions to its customer list which include Caltech, Care Innovations (an Intel-GE company), Citrix Online, Conde Nast, Coty, Equinix, Fox Digital Media, InMobi, JWT, Leo Burnett, SoftBank Technology, Telepictures Productions (a Warner Bros. Entertainment Company), Tibco and Zurich Insurance Group.

10. ServiceMesh

PRODUCT: AGILITY PLATFORM

CATEGORY: ENTERPRISE CLOUD MANAGEMENT

The Agility Platform provides a single, integrated control point for governance, compliance and security across an enterprise's cloud applications and environments. The platform comprises an extensible policy engine enabling the creation and enforcement of an impressive range of custom governance, compliance and security policies. It provides an end-to-end security model spanning network, instance, data and access levels, including federated identity management. It includes an orchestration engine for deploying complex, multi-tier business applications across heterogeneous private and public clouds. And it has an integrated event bus, a cloud adapter SDK and workflow automation capabilities to extend cloud operating model capabilities. ■

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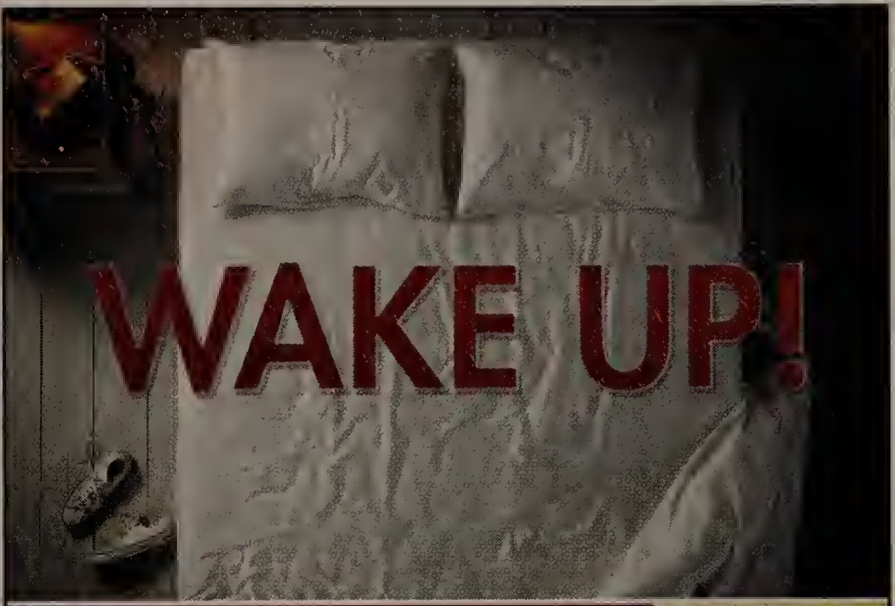

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A NETWORK WORLD ROUNDTABLE

RESPONSIBILITY FOR CLOUD SECURITY

AS MORE ORGANIZATIONS LEVERAGE THE CLOUD FOR CRITICAL BUSINESS APPLICATIONS, THEY ARE DISCOVERING ONE OF THE GREATEST CHALLENGES IS COMBINING EXISTING INTERNAL CONTROLS WITH CLOUD PROTECTION EFFORTS. HIGHLY REGULATED BUSINESS AND GOVERNMENT ORGANIZATIONS IN PARTICULAR MUST MAINTAIN COMPREHENSIVE SECURITY AND COMPLIANCE POSTURES ACROSS THESE HYBRID SYSTEMS. *NETWORK WORLD* EXPLORES THE ISSUE IN-DEPTH WITH:

SHAWN KINGSBERRY
CIO of the Recovery Accountability and Transparency Board

CRAIG SUTHERLAND
Principle Architect and Engineer, Lead Associate, Booz Allen Hamilton

MIKE ROTHMAN
President, Securosis

KEN AMMON
Chief Strategy Officer, Xceedium

FOR THE COMPLETE ROUNDTABLE SEE: TINYURL.COM/CZLCAE

NW: WHEN COMPANIES ARE BUILDING HYBRID CLOUDS, WHO IS RESPONSIBLE FOR WHAT WHEN IT COMES TO SECURITY? WHAT ARE THE PAIN POINTS AS COMPANIES STRIVE TO ADDRESS THIS?

AMMON: I think you end up with a shared-security model. The cloud service providers are offering many security capabilities that come with the service and it's in your best interest to take advantage of those capabilities. But you define your compliance requirements and if you can't get the necessary coverage you add your own overlay security architecture.

ROTHMAN: A lot of folks think having stuff in the cloud is the same as having it on-premises except you don't see the data center. They think, "I've got remote data centers and that's fine. I'm able to manage my stuff and get the data I need." But at some point these folks are in for a rude awakening in terms of what the true impact of not having control over layer 4 and down is going to mean in terms of lack of visibility.

SO MY FIRST DESIRE IS TO EXTEND ALL MY LEGACY CONTROLS TO THIS NEW ENVIRONMENT, BUT, BY THE SOUNDS OF IT, I'LL ALWAYS HAVE TO BOLSTER THESE CONTROLS FOR THE CLOUD.

SUTHERLAND: In this cost-sensitive environment you need to start with re-using existing infrastructure, and there's plenty that may be re-used. The point is, just be aware of the nuances and limitations of certain tools.

AMMON: Let's ignore the security controls utilized by the cloud provider below the visibility of the customer, i.e., from the hypervisor to the concrete slab. You are left with three categories of security tools: 1) Tools provided within the cloud such as firewall and VPN; 2) Existing enterprise security tools which operate no different within a cloud environment; and 3) Additional security tools necessary to manage the unique environment presented by the cloud. Here are two examples of new requirements for cloud security tools: First, due to the nature of cloud elasticity, these tools must accommodate an auto-scaling architecture and be able to automatically discover new systems and apply policies. And second is the challenge presented by the advent of the all-powerful cloud API layer. Within the API layer users are implementing the practice of auto configuration . . . basically machines building machines. That requires a new security paradigm to manage the unique challenge to auditing and controlling automated machine-to-machine privileged access. This will certainly require new cloud-specific security technology.

DOES THE CLOUD SERVICE PROVIDER, WANT THE BUYER TO ASSUME AS MUCH CONTROL OF THE SECURITY ENVIRONMENT AS POSSIBLE?

SUTHERLAND: It's ultimately the consumer's responsibility. But if you step down from SaaS to platform to infrastructure as a service, the consumer is assigned more of the responsibility. With additional flexibility, you also take on more responsibility for the security controls that are implemented. However, to develop a fully compliant or low-risk solution, you need to implement the user-entity controls in addition to your own controls above the service layer.

KINGSBERRY: We recently interviewed roughly 30 leaders across industry and the federal government about cloud computing security and built our cloud hub addressing every one of the security issues. We migrated our mail and collaboration into Microsoft 365 as their first GovCloud customer, and in parallel migrated other key infrastructure components over to Amazon. All NetFlow flows through our Recovery Accountability and Transparency Board (RATB) Cloud Hub on-premises, even Microsoft 365 Web mail, meaning if you use Microsoft 365 to send an email it comes back through our cloud hub stack from a compliance perspective. And we have capabilities within our stack like Xceedium that help us manage access control between Microsoft 365 and Amazon.

So, in essence, we have the same level of visibility between software as a service and infrastructure as a service. It's a shared responsibility, but I have auditing and compliance. No Social Security numbers, for example, are going to leave our organization because it gets stopped by Proofpoint. And everything goes through our NetWitness infrastructure and our McAfee Data Loss Prevention. We have categorized the RATB Cloud Hub into six critical services: 1) Governance 2) Protection 3) Access Control 4) Monitoring 5) System Management 6) Failover. Each category has components that play key roles into the delivery of the RATB Cloud Service. Proofpoint, RSA NetWitness, and McAfee Data Loss Prevention Managers are only a few of the components making up our Cloud Hub stack. Now we can put workloads anywhere and it doesn't matter.

A LOT OF THIS HAS TO BE BAKED INTO THE CONTRACT TERMS. ARE THERE BEST PRACTICES THAT ADDRESSES HOW?

ROTHMAN: A lot has to do with how much leverage you have with the provider. With the top two or three public cloud providers, there's not going to be a lot of negotiation. Unless you have a whole mess of agencies coming along with you, as in [Kingsberry's] case, you're just a number to these guys. When you deal with smaller, more hungry cloud providers, and this applies to SaaS as well, then you'll have the ability to negotiate some of these contract variables.

HOW ABOUT THE MATURITY OF THE CLOUD SECURITY TOOLS THEMSELVES? ARE THEY WHERE THEY NEED TO BE?

ROTHMAN: You'll walk around the RSA Conference and everybody will say their tools don't need to change, everything works great and life is wonderful. And then after you're done smoking the RSA hookah you get back to reality and see a lot of fundamental differences of how you manage when you don't have visibility. How do you enforce network policies when you're restricted to security groups and you only have the ability to open up certain protocols? And you have access through APIs that may be gamed to terminate or reconfigure instances on the fly, without requiring administrative access to the cloud instance. You've also got different cryptographical hierarchies that are required to provide access to those instances. If the management tools are not built specifically to provide consistent access to cloud resources, wherever they are, things can go downhill pretty quickly.

So the idea of consistency is critical. But it's a management problem before it's a security problem. So now you have the ability to, within minutes, provision all sorts of servers. OK. But that creates an issue in terms of configuration management, in terms of patch management, etc. So on one hand the tools really have to be mature to overcome and instrument your lack of visibility in a cloud type of environment, but there's still a lot of blocking and tackling needed in terms of just the basic operational disciplines.

AMMON: Many of the new security options will actually improve your agility and reduce your costs. An example of that would be a typical machine shutdown and forensics if you had an exploit. With the cloud you can copy a suspected server image to your forensic tool kit, fire up a brand-new replacement image and do all this through the click of a mouse as opposed to deploying employees to data centers. With cloud, experience really matters. Customer can greatly benefit by contracting with proven cloud architects who can help them figure out how to take advantage of the power of the cloud while avoiding cloud supplier lock-in or overly complex management of desperate security tool sets. Customers should implement centrally managed security if they want to maximize reduction in expense and complexity. A piecemeal cloud strategy may leave you with a collection of cloud islands operated and controlled through disconnected security tool sets.

That's actually a problem we are just starting to see in the privileged identity management arena, something we call islands of identity, where organizations are using a different tool on each platform — cloud, virtual, etc. — to manage privileged identities. We address this with a privileged identity management solution that reduces the risks that privileged users and unprotected credentials pose to systems and data. With Xsuite, customers can implement secure privileged identity management across their entire hybrid cloud. It vaults privileged account credentials, implements role-based access control, and monitors and records privileged user sessions. And our unified policy management enables Xsuite to deliver the seamless administration of security controls across systems, whether they reside in a traditional data center, a private cloud, on public cloud infrastructure, or any combination thereof.

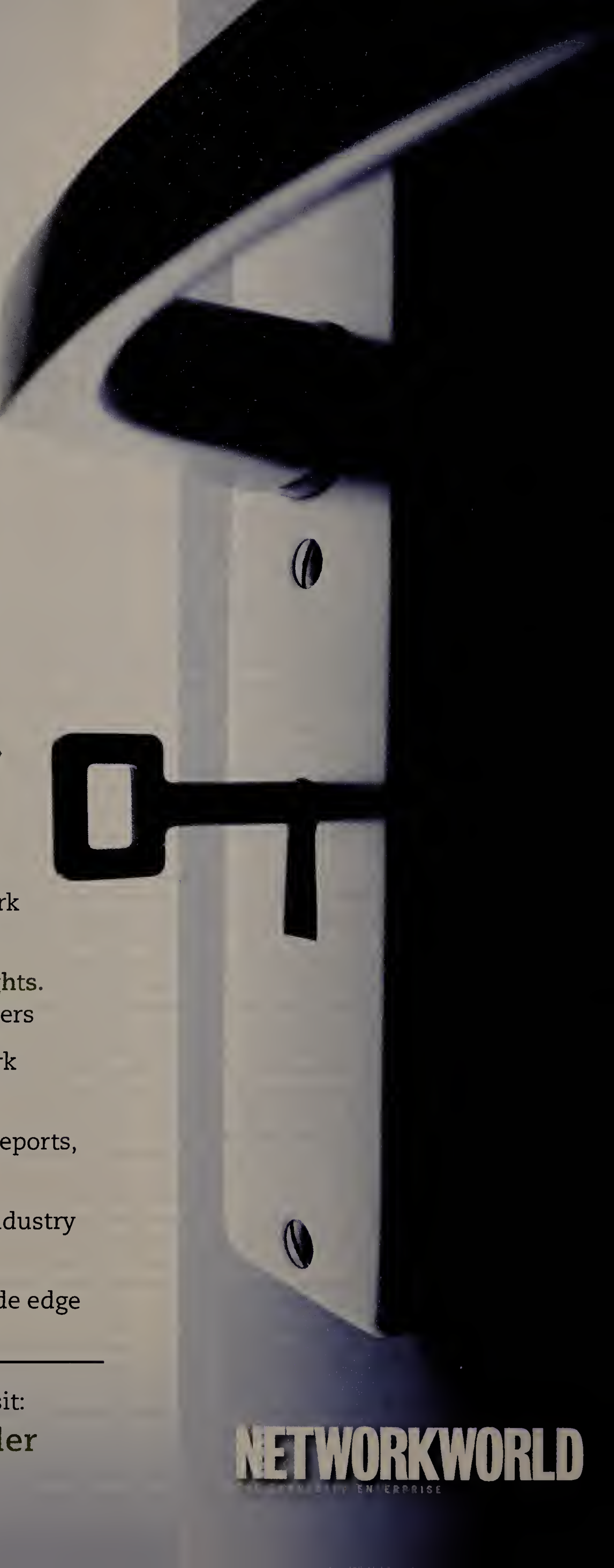
SUTHERLAND: I think the tools are making progress. We've deployed decentralized protection architectures that allow for the virtual instances to protect themselves rather than relying solely on centralized protection architectures. So, for example, utilizing IDPS or intrusion detection prevention at the instance level, the instance is able to protect itself in-depth against attack vectors that may originate from or be launched from inside the perimeter. Combined with integrity monitoring at the instance level and in the application layer, this provides real-time reporting on malicious or unexpected changes to configuration system files or data access.

AMMON, YOU ONCE SAID IDENTITY IS BECOMING THE NEW PERIMETER. CAN YOU EXPAND ON THAT?

AMMON: All security exploits involve two steps, gaining access and elevating rights/privileges. The combination of both mobility and cloud has resulted in the erosion of the traditional security boundary. Managing risk calls for a more granular approach to the process of granting, controlling and containing access. With identity as the new perimeter, system owners should demand a separation between identification/authentication and authorization. Granting unfettered access to an entire network segment or all features within a cloud management console incurs unnecessary risk. System owners should also take advantage of federating privileged identity to reduce management complexity and improve accountability.

SUTHERLAND: Just to add to that, when you're using shared privileged accounts, being able to separate authentication and authorization in my experience is very important and is critical to be able to monitor and control access and perform forensics. So a privileged user access control system allows this policy to be enforced for each user, even when using shared privilege accounts at the instance level and still providing full attribution of the activities to the individual privileged user.

ROTHMAN: Right. This is another thing that I don't think the compliance hierarchies and auditors and assessors have clued in on, in terms of common console access. PCI for the last seven or eight years has had this concept of unique ID and kind of being able to control things down to a specific individual to be able to wrap changes back to. But again, cloud breaks that model for a lot of different reasons. So this gets back to the idea that we just don't know what we don't know quite yet. ■



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NETWORKWORLD
492 Old Connecticut Path,
P.O. Box 9002
Framingham, MA 01701-9002
Phone: (508) 766-5301

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BACKSPIN | BY MARK GIBBS

Facebook and 'minnovation'

WELL, I don't know about you but I was pretty disappointed by Facebook's announcement on Thursday. I was expecting something more meaty than what Mark Zuckerberg, Facebook's CEO, described as "a set of apps."

Now perhaps I'm being a little harsh as I know full well my expectations were artificially raised by the hype and rumor mill that preceded the announcement, but, on the other hand, a set of apps for Android called Home? That's the big announcement?

Given that Facebook is still struggling to figure out how to justify its IPO share price I would have thought we'd get something with a little more "wow" factor. What we got is a mobile-oriented Facebook interface with "Chat Heads" — pop-up notifications with pictures. Zzzzz.

Zuckerberg enthused: "On one level, Home is the next mobile version of Facebook. On the other, it's a change in the relationship with the next generation of computing devices." What utter nonsense. But that's pretty common nowadays; all of the big players' "big" announcements are now merely iterations of existing products.

So where's the next iPhone coming from? Where's the next iPod? Where's the next... I was going to cite something from Microsoft but it's been a long time since Redmond produced a real "wow!"

Perhaps the problem is we're all out of innovation in the computer products world. Where the mass market is concerned, the computer industry has become minimally innovative, or, if I might coin a term, it has become "minnovative"; it's turned into a flood of tiny, incremental improvements and the reason is very simple: For the majority of the world, Windows XP was and still is good enough.

Sure, the latest computer hardware has staggeringly fast processors and unbelievably huge memory, but we've reached the point where, for most computer users, last year's hardware can run this year's applications perfectly well with cycles and storage to spare. Indeed, hardware from the year before probably can too, or even from the year before that.

Those of us who can and actually do use all of that performance and dream of having more do exist, but we're a tiny minority. The rest of computer users not only barely scratch the potential of whatever computer they use, they barely understand what it is they're using!

Even so, the hoi polloi are eschewing regular desktops and laptops in favor of smartphones and pad computers at a remarkable rate, for three main reasons. The first is simplicity, because managing these new devices is generally far simpler than managing Windows, OS X or Linux. The second reason is that apps for iOS and Android are cheap or free. And the third is that all of the fancier stuff users might want to do is out there in the endlessly hyped "cloud," again, for free or cheap.

But the truth is that precious little of that fancier cloud stuff is really that fancy. It's more of the same old stuff you can do on the old and new hardware, but prettied up. It's got its new, sexy party frock on, but it's still dancing to the same old tunes of word processing, spreadsheets, databases, image editing, email and social media.

So, where's the real innovation going to come from? I have no idea, but I know given Thursday's performance, it ain't Facebook. ■

Gibbs is underwhelmed in Ventura, Calif. Does your mileage differ? Tell him at backspin@gibbs.com and follow him on Twitter and App.net (@quistuipater) and on Facebook (quistuipater).

NETBUZZ | BY PAUL MCNAMARA

Why business cards still beat 'the bump'

MARKETING CONSULTANT Mark Schaefer recently published a blog post headlined: "The best digital business idea that just never worked." It's about being at the SXSW conference recently and noticing that even that collection of digerati remains stubbornly dependent upon paper: paper programs, paper posters, paper fliers and paper name tags.

And then he gets to his main paper point: "But the strangest hold out of all is the business card. I probably passed out (and received) 250 business cards at the event. Nobody offered a 'digital' card and nobody asked for one, even though that 'bump' technology of transferring from one mobile device to another has been around for a few years. ... 'Bumping' a business card is such a great idea. But it never worked. Why?"

He posed the question to a Facebook group and received a bunch of plausible answers, most boiling down to habit and the fact that paper cards offer subtle benefits that the bump just can't match.

But here's another reason: human nature.

Never having exchanged cards electronically, I'm going to nonetheless assume that offering a "bump" requires a conversation between the parties to ascertain that a) the receiver is amenable to this method, and b) he or she possesses the necessary technology (yes, people still carry not-so-smart phones).

That bother alone is enough to dissuade this non-bumper, who has had occasion to be at a conference room table with a half-dozen previously unknown vendor representatives.

But there are also other considerations. Some new contacts may acquiesce to and accept your bump even though they really would prefer a physical card; too polite to ask, they leave the encounter slightly unfulfilled if not irritated. And should you make the offer to someone who either doesn't bump or lacks the technology, well, you've added the possibility of embarrassment to the possibility of irritation.

But, wait, you say: What about the bumpers who hate paper cards and are irritated by the collective failure of most of us to get with the bump program?

That's their problem. And the irritation they experience, unlike the type they risk causing, cannot be directed at specific individuals or else they'd be irritated with virtually everyone.

When I made these points on Buzzblog, readers chimed in:

- "Business cards are handy as you can quickly write notes on the back as to what you need to do for the customer."
- "Add to the equation the potential for BTDs or Bump Transmitted Diseases. Consider the mortification from spreading some form of zero-day specially malformed bump-transmitted viral packet that spreads malware from phone to phone via those friendly 'bumps.'"
- "Often when I am in a meeting with a group of people, I hand out my business card and they all hand me theirs. I then put the cards in front of me on the table in the same relative order as the people sitting at the table. As each person talks to me I can call them by their name and cement into my mind which person is which. ... When 'bump' can do that, I will consider it."

Business cards are going to be around for a long, long time. ■

Care to disagree? The address is buzz@nww.com.

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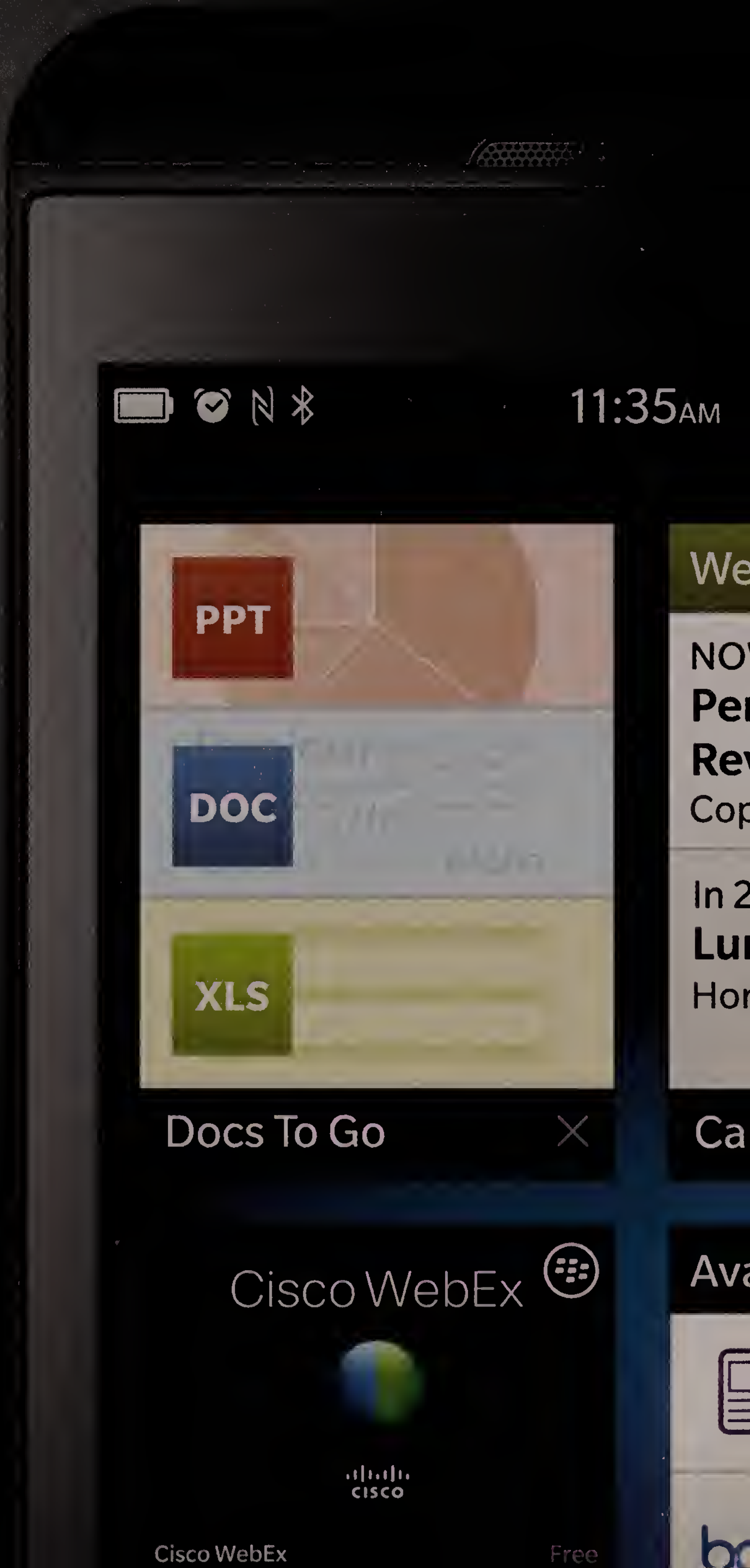

SMARTER TECHNOLOGY FOR A SMARTER PLANET

FROM DETAILS TO DESIRES: THE POWER OF BIG DATA.

Companies aren't short on data. In fact, with the average large business storing more than 200 terabytes, companies have more than enough data to tell them who is buying their product, as well as how, when and where the buying happens.

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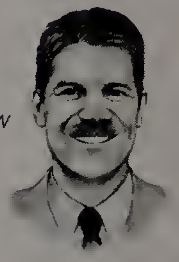
> ***"For the first time, we can decide which promotions to run based on facts rather than gut feel."***
>
> ***Patrick Neeley***
> *Chief Business Officer, Chickasaw Nation Division of Commerce*



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